

THE PREDATORY EFFECTS OF COPYRIGHT PIRACY

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INTRODUCTION

Developing countries are often considered non-stakeholders in effective copyright enforcement because they have not built up robust copyright industries, and copyright piracy therein mostly targets the works of foreign copyright owners.¹ It is also argued that, while copyright piracy mainly undermines the incentive to produce and the ability to compete on the part of foreign firms, local firms might actually have a competitive edge and be able to enjoy a healthier growth.² Although various international treaties such as the Berne Convention³ and the TRIPS Agreement⁴ have harmonized national copyright laws at a rather high level, many developing countries regard such legislative initiatives only as a trade-off in international trade negotiations. In exchange for stronger copyright protection to secure export markets for intellectual products from developed countries, developing countries receive lower tariffs on their own exported products such as textile and agriculture.⁵

It turns out that multinational firms, which hold dominant positions in the copyright market, are not in a hurry either to enforce their copyrights against piracy in developing countries. Bill Gates once indicated that “although about 3 million computers get sold every year in China, people don’t pay for the software. Someday they will, though. As long as they’re going to

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¹ See generally Peter Yu, *The Copyright Divide*, 25 *CARDOZO L. REV.* 331 (2003). Many Chinese officials appear to endorse the viewpoint as well. See Daniel C.K. Chow, *Why China Does Not Take Commercial Piracy Seriously*, 32 *OHIO N.U. L. REV.* 203, 204 (2007).

² See, e.g., Peter Yu, *From Pirates to Partners (Episode II): Protecting Intellectual Property in Post-WTO China*, 55 *AM. U. L. REV.* 901, 950–51 (2006) (“Indeed, if its competitors had been less protective of their products, the publisher’s actions might have driven the pirates to its competitors, increasing their losses while reducing their ability to compete.”).

³ Berne Convention for the Protection of Literary and Artistic Works arts. 1–2, Sept. 9, 1886, S. TREATY DOC. NO. 99-27, 1161 U.N.T.S. 3 (amended Sept. 28, 1979).

⁴ Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, LEGAL INSTRUMENTS—RESULTS OF THE URUGUAY ROUND, 33 *I.L.M.* 81, 93–94 (1994).

⁵ See e.g., MICHAEL P. RYAN, *KNOWLEDGE DIPLOMACY: GLOBAL COMPETITION AND THE POLITICS OF INTELLECTUAL PROPERTY* 12 (1998); Frederick M. Abbott, *The WTO TRIPS Agreement and Global Economic Development*, 72 *CHICAGO-KENT L. REV.* 385, 387–88 (1996).

steal it, we want them to steal ours. They'll get sort of addicted, and then we'll somehow figure out how to collect sometime in the next decade."⁶

The lukewarm attitude towards copyright protection has created a unique "legal collusion"⁷ with respect to copyright enforcement in China. On paper, the Chinese government constantly updates copyright statutes to conform with international standards; but in reality, enforcement authorities as well as dominant copyright owners only implement such statutes half-heartedly by means of sporadic enforcement campaigns and modest penalties.⁸ Pirate enterprises are undeterred by copyright law and willing to take the risk of legal penalties as part of the costs of doing business.

This article argues that, contrary to conventional wisdom, piracy of foreign works often poses a threat to the livelihood of domestic firms in a more formidable way than to foreign firms. Furthermore, unwarranted toleration of copyright piracy will drive small domestic developers out of the market, erect entry barriers, and eventually enhance the market power of multinational firms. To this extent, dominant firms have the tendency to strategically acquiesce or even encourage copyright piracy, which could have significant anticompetitive effects in the same way as predatory pricing does.

Section I of this article explores the gap between the perception and reality of copyright piracy in China. It demonstrates that the Chinese software industry's uneven development contradicts the popular view that copyright protection is much less relevant to domestic industries because most piracy in China targets foreign works. Section II analyzes the similarities between piracy and predatory pricing. It focuses on the anticompetitive effects that rampant piracy, even mostly of foreign works, have on domestic producers and consumers, which are comparable to those of predatory pricing. Section III examines possible legal mechanisms which could provide incentives for effective copyright enforcement and redress predatory behaviors disguised as toleration for piracy. The article concludes by briefly recapping the major issues.

⁶ See Charles Piller, *How Piracy Opens Doors for Windows*, L.A. TIMES, April 9, 2006, <http://www.latimes.com/business/la-fi-micropiracy9apr09,0,414067.story?track=totext>.

⁷ "Legal collusion" refers to the conspiracy of relevant interested parties (sometimes including law enforcement) to bypass legal requirements. For examples outside of the copyright arena, see LAWRENCE M. FRIEDMAN, *AMERICAN LAW IN THE 20TH CENTURY* 436 (2002) (describing collusion under the fault-based divorce law); Xin He, *Why Do They Not Comply with the Law? Illegality and Semi-Illegality among Rural-Urban Migrant Entrepreneurs in Beijing*, 39 L. & SOC'Y REV 527, 532-33 (2005) (discussing collusion under the business permit regime in China).

⁸ See, e.g., Gregory S. Feder, *Enforcement of Intellectual Property Rights in China: You can Lead A Horse to Water, But You Can't Make it Drink*, 37 VA. J. INT'L L. 223 (1996) (discussing the insufficiency of China's effort to enforce her domestic intellectual property laws and to discharge her international obligations); Glenn R. Butters, *Pirates, Dragons and U.S. Intellectual Property Rights in China: Problems and Prospects of Chinese Enforcement*, 38 ARIZ. L. REV. 1081, 1107 (1996) (providing economic and cultural explanations for China's intellectual property enforcement problems).

I. COMPETING WITH PIRACY

The piracy problem in China has been in the spotlight since the early 1990s as a result of the still ongoing Sino-US intellectual property dispute.⁹ The United States Trade Representative (“USTR”) had listed China as one of the “Priority Foreign Countries” three times in its annual Special 301 report (respectively in 1991, 1995 and 1996), followed by imminent threats of unilateral trade sanctions.¹⁰ However, each time, the two countries managed to avoid a trade war at the last minute by reaching an agreement in which China undertook to take further legislative and enforcement initiatives to improve intellectual property protection and the United States agreed to withhold the sanctions for the time being. Although the threat of unilateral retaliation was rarely used after China joined the World Trade Organization (“WTO”) in 2001,¹¹ China still topped the “Priority Watch List” in the USTR Special 301 report most years, leading the United States to file a WTO complaint against China’s in compliance with the TRIPS Agreement.¹²

The magnitude of the piracy problem in China is apparent from the annual country-by-country reviews that Business Software Alliance (“BSA”) prepared for the USTR Special 301 report.¹³ During the period from 2004 to 2008, the level of software piracy in China was consistently in the range of 80% - 90%.¹⁴ By comparison, the levels of piracy were generally in the range

⁹ Peter Ganea & Jin Haijun, *China*, in *INTELLECTUAL PROPERTY IN ASIA* 17, 32–33 (Paul Goldstein & Joseph Straus eds., 2009) (explaining the Sino-US intellectual property dispute).

¹⁰ Under Special 301 provisions, USTR will identify those countries that deny adequate and effective protection for intellectual property or deny fair and equitable market access for intellectual property producers. Countries whose intellectual property policies or practices are considered most egregious and having the most significant impact on the relevant US industries will be designated as “Priority Foreign Countries,” followed by further investigation and possible trade sanctions. Additionally, USTR has created a “Priority Watch List” and a “Watch List” under Special 301 provisions. Placement of countries on such lists indicates that they are the focus of increased bilateral attention with respect to intellectual property protection. See Trade Act of 1974, § 301, Pub. L. No. 93-618, 88 Stat. 1978, 2041–43 (2012) (codified as amended at 19 U.S.C. § 2411–20 (1994 & Supp. IV 1998)).

¹¹ See generally Raj Bhala, *Enter the Dragon: An Essay on China's WTO Accession Saga*, 15 AM. U. INT'L L. REV. 1469 (2000) (providing a general overview of China’s accession into the WTO); Karen Halverson, *China's WTO Accession: Economic, Legal, and Political Implications*, 27 B.C. INT'L & COMP. L. REV. 319 (2004) (discussing some of the issues and consequences of China’s WTO accession).

¹² See Lanye Zhu & Jiarui Liu, *Sino-US Intellectual Property Dispute: A New Chapter in WTO History*, 3 J. INTELL. PROP. L. & PRAC. 194 (2008) (providing a detailed discussion of the legal merits of the US claims in the WTO complaint); World Trade Organization, *Dispute Settlement: Dispute DS362*, WTO.INT (Jan. 26, 2009), http://www.wto.int/english/tratop_e/dispu_e/cases_e/ds362_e.htm (reporting that the US claims were partly upheld).

¹³ See BUSINESS SOFTWARE ALLIANCE, *SIXTH ANNUAL GLOBAL SOFTWARE PIRACY STUDY* (May 2009), <http://globalstudy.bsa.org/2008/studies/globalpiracy2008.pdf>.

¹⁴ *Id.* at 12.

of 20 - 30% in advanced markets such as the United States, Japan and Western European countries.¹⁵ Even among similar emerging markets in Asia, China lagged far behind South Korea and Taiwan where the level of software piracy roughly equaled the average level in the world (approximately 40%).¹⁶

Skepticism surrounding copyright law appears to be one of the major factors contributing to widespread piracy in China. The overwhelming majority of pirated products (especially software) infringe upon foreign works rather than domestic works. Therefore, many Chinese people including government officials tend to believe that a high level of copyright protection would primarily benefit foreign companies, but would have little relevance to domestic interests.¹⁷ Additionally, insufficiency in intellectual property protection does not appear to pose any meaningful deterrence to the flow of foreign investment aimed mainly at taking advantage of the low labor cost and the large market size in China.¹⁸ In any event, copyrights are much less useful than patents and trade secrets for encouraging technology transfer on which the Chinese government places a high premium.¹⁹

Furthermore, it has been argued that the existence of copyright piracy might in many ways be helpful for domestic growth in China.²⁰ For instance, copyright piracy, by driving the prices of copyrighted works to the marginal costs, apparently helps widen access to knowledge and lower the barrier to education²¹ especially for rural Chinese households whose annual per capita disposable income is less than US \$2,000.²² Additionally, copyright piracy is at times considered a powerful boost to local economies, creating job opportunities for residents and tax revenues for the government.²³

¹⁵ *Id.* at 12–13.

¹⁶ *Id.* at 12.

¹⁷ See *supra* note 1 and accompanying text.

¹⁸ For the relationship between intellectual property protection and foreign investment, see, e.g., Carlos A. Primo Braga & Carsten Fink, *The Relationship Between Intellectual Property Rights and Foreign Direct Investment*, 9 DUKE J. COMP. & INT'L L. 163, 169–75 (1998); Keith E. Maskus, *The Role of Intellectual Property Rights in Encouraging Foreign Direct Investment and Technology Transfer*, 9 DUKE J. COMP. & INT'L L. 109, 113–28 (1998).

¹⁹ See Eric Priest, *The Future of Music and Film Piracy in China*, 21 BERKELEY TECH. L.J. 795, 845 n. 246 (2006) (arguing that “[t]he government apparently considers patents to be more essential to China’s overall economic growth and stability than copyright”).

²⁰ See Chow, *supra* note 1, at 203–04.

²¹ See Jing Zhang, *Pushing Copyright Law in China: A Double-Edged Sword*, 18 DEPAUL J. ART, TECH. & INTELL. PROP. L. 27, 44, 68 (2007) (discussing how those that have free speech concerns may be sensitive about the negative effects of rigid copyright enforcement).

²² For relevant statistics, see STATISTICAL COMMUNIQUÉ OF THE PEOPLE’S REPUBLIC OF CHINA ON THE 2015 NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT, NATIONAL BUREAU OF STATISTICS OF CHINA (Feb. 29, 2016), http://www.stats.gov.cn/english/PressRelease/201602/t20160229_1324019.html.

²³ See DANIEL C.K. CHOW, *THE LEGAL SYSTEM OF THE PEOPLE’S REPUBLIC OF CHINA* 457 (3d ed. 2015) (describing, in Yiwu City, “it is no exaggeration to say that the entire local economy . . . is built on

The perception that copyright piracy is irrelevant or even beneficial to the domestic industry, however, contrasts sharply with reality in the Chinese copyright market. A recent market survey jointly conducted by the Ministry of Information Industries and China Software Industry Association revealed that the two biggest challenges facing domestic software developers are the threat of copyright piracy and the lack of technology innovation (two sides of the same coin), while competition from foreign companies is considered to be the most insignificant one among all the relevant challenges.²⁴ The overall development of the software industry appears to have suffered a structural imbalance under the pressure to survive a high level of piracy in China. Many software companies have entirely given up R&D and become pure out-sourcers of foreign competitors.²⁵ The remaining software developers normally focus on customized software products rather than general software products given that general mass market software products (e.g., operating systems, spreadsheets and text processing applications) are much more susceptible to copyright piracy.²⁶ Many software developers probably still remember that a domestic program called WPS used to dominate the Chinese market for text processing software in the late 1980s and early 1990s.²⁷ However, its market share rapidly shrank and its developer Kingsoft almost went bankrupt after pirated copies of Office 95 flooded the marketplace.²⁸

The disparity between perception and reality underscores an overlooked dimension of copyright protection: domestic works and foreign works are often good (albeit not perfect) substitutes for each other.²⁹ Consumption of foreign works (whether by means of pirated products or not) would also displace the demand for domestic works. As a result, piracy of foreign works would likely impact domestic industries as much as (if not more than) foreign copyright owners. The high-degree of substitutability between foreign and

the trade in counterfeit and pirated goods and that shutting down this illegal trade would be tantamount to shutting down the local economy”).

²⁴ See Ministry of Information Industries and China Software Industry Association, *The Survey Report on the Environments for the Development of the Chinese Software Industry*, 7 ELECTRONIC INTEL. PROP. 12 (2004).

²⁵ See Michael Casey, *Chinese Firms Ramp Up R & D Spending as They Catch Up With the West*, FORTUNE (Oct. 27, 2014), <http://fortune.com/2014/10/27/chinese-firms-ramp-up-rd/>.

²⁶ Rieko Mashima, *The Turning Point for Japanese Software Companies: Can They Compete in the Prepackaged Software Market?*, 11 BERKELEY TECH. L. J. 429, 445 (1996).

²⁷ See Yahong Li, *Pushing for Greater Protection: The Trend Toward Greater Protection of Intellectual Property in the Chinese Software Industry and the Implications for Rule of Law in China*, 23 U. PA. J. INT'L ECON. L. 637, 642–54 (2002).

²⁸ For a brief history of the WPS software, see http://en.wikipedia.org/wiki/WPS_Office (last visited Mar. 30, 2017).

²⁹ See Paul Goldstein, *Copyright*, 55 LAW AND CONTEMP. PROBS. 79, 84 (1992) (stating that “[a]lthough we would prefer not to admit it, one author’s expression will always be substitutable for another’s”); Edmund W. Kitch, *Elementary and Persistent Errors in the Economic Analysis of Intellectual Property*, 53 VAN. L. REV. 1727, 1730 (2000) (arguing that “copyrights do not prevent competitors from creating works with the same functional characteristics”).

domestic works lies primarily in several legal doctrines in copyright law. First, the exclusive rights of a copyright owner only extend to actual copying of her copyrighted work.³⁰ Independent creation of a work of authorship, even if it happens to be identical to a pre-existing one, would not constitute copyright infringement.³¹ In fact, such a work would likely be considered original and entitled to a copyright separate from the pre-existing one. Furthermore, copyright protection only extends to expressions rather than ideas in a work of authorship.³² The idea/expression dichotomy suggests that a subsequent author could intentionally imitate a pre-existing work as closely as possible, provided that the borrowing is limited to unprotected ideas. Accordingly, similar works from different sources abound in the marketplace due to either coincidental repetitiveness or deliberate imitation. Likewise, piracy of foreign works may take over the market shares of domestic works especially in the software market where functionality and standardization are much more important than variety.

II. PIRACY AND PREDATION

The above analysis underscores the intuition that domestic works and foreign works are good substitutes for each other. Consequently, piracy of foreign works could also displace the supply, and therefore lower the demand, of domestic works. To this extent, piracy of foreign works may have effects on domestic markets, competitors, and consumers akin to predatory pricing. This section will start with an introduction of general theories on predatory pricing, followed by a point-to-point comparison of rampant piracy and predatory pricing.

³⁰ In other words, the social costs of copyright are limited access to a work created by the author, while the social costs of patent are limited access to certain inventions created either by the patentee or by any third party.

³¹ See, e.g., *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, 54 (2d Cir. 1936) (“[B]ut if by some magic a man who had never known it were to compose anew Keats’s Ode on a Grecian Urn, he would be an ‘author’ and, if he copyrighted it, others might not copy that poem, though they might of course copy Keats’s.”).

³² See 17 U.S.C. § 102 (2012). It should not be an overstatement that most countries of the world recognize the idea/expression dichotomy, as the TRIPS Agreement already incorporates such a rule. See Agreement on Trade-Related Aspects of Intellectual Property Rights art. 9, Apr. 25, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 33 I.L.M. 1197 (“Copyright protection shall extend to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such.”).

A. *Predatory Pricing Overview*

In economic terms, predatory pricing refers to the practice of price reduction that is profitable only because of the market power that the predator maintains or gains from eliminating, disciplining, or deterring the competitive conduct of a rival or potential rival.³³ Predatory pricing is rational only because of its exclusionary and anticompetitive effects. Antitrust law traditionally examines predatory pricing in the framework of monopolization (or an attempt to monopolize) under § 2 of the Sherman Act³⁴ and primary-line price discrimination under § 2 of the Clayton Act (as amended by the Robinson-Patman Act).³⁵

Predatory pricing is one of the oldest regimes under federal antitrust law.³⁶ In the early twentieth century, the courts used to be of the view that predatory pricing was relatively easy for well-financed firms to accomplish and was a frequent occurrence by which monopoly came into being.³⁷ Therefore, the legal test for predatory pricing was fairly straightforward at that time: the plaintiff could prevail simply by showing that the defendant was a large firm and the victim was small, that prices in the predated area went down, and the defendant intended to harm its rivals.³⁸ Plaintiffs unsurprisingly prevailed in most litigated cases, including those they probably should have lost.³⁹

The Chicago School shortly began to question the viability of predatory pricing with a view that predatory pricing rarely makes economic sense and thus is unlikely to occur very often in reality.⁴⁰ Those commentators believed that, for predatory pricing to be rational, the predator must have a reasonable expectation of recouping, in the form of later monopoly profits, more than it lost during the predation period.⁴¹ However, the recoupment appears to be

³³ *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 224 (1993); *Matsushita Elec. Indus. Corp. v. Zenith Radio Corp.*, 475 U.S. 574, 590–91 (1986); *Cargill Inc. v. Monfort of Colo., Inc.*, 479 U.S. 104, 117–118 (1986).

³⁴ 15 U.S.C. § 2 (2012).

³⁵ 15 U.S.C. § 15(a) (2012).

³⁶ See A.B.A. SECTION OF ANTITRUST LAW, MONOGRAPH NO. 22, PREDATORY PRICING 28–33 (1996).

³⁷ See Kenneth G. Elzinga, *Predatory Pricing: The Case of the Gunpowder Trust*, 13 J.L. & ECON. 223, 237 (1970); Roland H. Koller II, *The Myth of Predatory Pricing: An Empirical Study*, 4 ANTITRUST L. & ECON. REV. 105, 110–11 (1970–1971); John S. McGee, *Predatory Price Cutting: The Standard Oil (N.J.) Case*, 1 J.L. & ECON. 137, 137 (1958).

³⁸ See *Utah Pie Co. v. Cont'l Baking Co.*, 386 U.S. 685, 698–700 (1967).

³⁹ See Koller, *supra* note 37, at 111.

⁴⁰ See generally Jonathan B. Baker, *Predatory Pricing After Brooke Group: An Economic Perspective*, 62 ANTITRUST L.J. 585, 586–89 (1994) (providing a comprehensive summary of the criticisms that the Chicago school made on predatory pricing rules).

⁴¹ *Id.* at 586.

quite implausible for several reasons.⁴² First, the monopoly profits need to substantially exceed the losses incurred during the predation period because of the time value of money. Second, after a rival is driven out of the market, its assets may be purchased, presumably at a large discount, by another rival who will then be in a better position to compete with the predator. Third, the supracompetitive pricing may in any event breed quick entry by new competitors eager to share in the excess profits.

Even if predatory pricing did occur in reality, the court is generally ill-equipped to assess the difficult issues involved in the cost measurement and, therefore, is prone to errors. Price-cutting is often the very essence of competition. The strategy by which a firm engages in predatory pricing is confusingly similar to those by which a firm stimulates competition. Overenforcement is especially dangerous because it can chill legitimate, pro-competitive price-cutting, the very conduct that antitrust laws are designed to protect. The social benefits of redressing the small number of predatory pricing cases (if any) would likely be outweighed by the chilling effects on firms that fear aggressive price reductions being mislabeled as predation. Hence, Chicago School commentators believe that it is better to error on the safer side, disallowing any attack against predatory pricing under antitrust law.⁴³

The above arguments appeared to have persuaded many judges into believing that “predatory pricing schemes are rarely tried and even more rarely successful.”⁴⁴ The Supreme Court has created a couple of hurdles to limit the application of predatory pricing rules. First, predatory pricing is likely only if the price complained of is below an appropriate measure of costs, which is generally considered average variable costs. Additionally, the Supreme Court requires a plaintiff alleging predatory pricing to demonstrate that the defendant has a dangerous probability of recouping the investment in below-cost prices. In other words, the defendant should be able to set supracompetitive prices high enough and then sustain those prices long enough to earn profits in excess of what it earlier sacrificed. These doctrinal hurdles, as well as the judiciary’s general skepticism of the rationality of predatory pricing as a business strategy, have made predatory pricing claims rarely successful in recent cases.⁴⁵

However, modern economic analysis and empirical studies have shown that, contrary to Chicago School theories, predatory pricing can be (and have

⁴² See ROBERT BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* 144–55 (1978) (“The future flow of profits, appropriately discounted, must then exceed the present size of the losses.”); Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263, 268 (1981) (arguing that, absent some assurance that the hoped-for monopoly will be sustained for a significant period of time, “[t]he predator must make a substantial investment with no assurance that it will pay off”).

⁴³ See BORK, *supra* note 42, at 430.

⁴⁴ *Matsushita Elec. Indus. Corp. v. Zenith Radio Corp.*, 475 U.S. 574, 589 (1986).

⁴⁵ The few exceptions include *William Inglis & Sons Baking Co. v. Cont’l Baking Co.* 981 F.2d 1023 (9th Cir. 1992); *U.S. Philips Corp. v. Windmere Corp.*, No. 84-2508, 1991 U.S. Dist. LEXIS 16024, at *41 (S.D. Fla. Sept. 3, 1991).

been) a rational and successful business strategy in a world of imperfect and asymmetric information.⁴⁶ For instance, if the predator has multiple geographic markets, predatory pricing in one market becomes less costly where profitable recoupment may be achieved rapidly in many other markets. If imperfections in the market for capital cause the prey to have less access to financial capital than the predator, the predator may reasonably expect to use its “deep pockets” to drive the prey to exit. Furthermore, if high prices following the prey’s exit are unlikely to be eroded by new competition because of high entry barriers, predatory pricing with single-market recoupment may no longer be an irrational strategy.

B. *Similarity between Piracy and Predatory Pricing*

Based on modern strategic theories, in order for predatory pricing to be rational and viable, the following elements should generally be present: (1) a facilitating market structure, (2) below-cost pricing, (3) sufficient financial power to maintain the below-cost price for a substantial period of time, (4) the intended effect of driving out or excluding rivals; and (5) a reasonable prospect of recouping the losses incurred in below-cost pricing through higher profits earned in the absence of direct competition. Rampant piracy is arguably comparable to predatory pricing almost in all aspects.⁴⁷

1. Facilitating Market Structure

Predatory pricing would be effective only in a concentrated market with high entry barriers, which would shelter the predator from the immediate competition of new entrants when it intends to recoup the predatory investments. Under such circumstances, a dominant firm with a high market share

⁴⁶ Patrick Bolton, Joseph Brodley & Michael H. Riordan, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 GEO. L. J. 2239, 2247 (2000).

⁴⁷ In theory, copyright piracy may also be analogized to dumping, which is usually considered unfair practice in the context of international trade law. However, such an analogy would be less useful because of fundamental differences between the two regimes: First of all, the benchmark for dumping is “normal value,” which generally refers to the price in the exporter’s home market, the price in another export market or the combination of production costs and normal profit margins (often called “structural price”) as the case may be. Apparently, international price discrimination rather than below-cost pricing is the major concern of antidumping law. To the extent that price discrimination is widely recognized as a useful tool to control copyright piracy, antidumping law may actually narrow the enforcement options of copyright owners. Secondly, the key task for the anti-dumping authority is to assess the need and rate of an anti-dumping duty, which significantly differs from possible remedies against copyright piracy. That being said, anti-dumping law mainly aims to protect domestic industries from being affected by the dumping of foreign products and therefore develops a very sophisticated set of methodologies to assess the injuries to domestic industries. Such methodologies could be of reference value where we evaluate the adverse effects of copyright piracy.

would have sufficient monopoly power to raise and maintain the price at a supracompetitive level for a substantial period of time.

There exist a variety of entry barriers in the Chinese software market. First, software industries are notorious for high fixed costs of creation, such as R&D expenses, production, and promotion costs. Therefore, potential competitors do not enter without the prospect of long-term survival sustainable enough to at least recover those initial fixed costs.

Second, China introduced a unique censorship system, which stands as a high entry barrier for software products (especially entertainment software).⁴⁸ Establishing new companies or releasing new products in those industries subjects companies to extensive government scrutiny. Regardless of the chilling effects on the total number of market entrants and works produced, the censorship process itself incurs substantial costs.

Most importantly, the software industry is featured with network effects, which have the potential to erect insurmountable entry barriers. Network effects refer to the market phenomenon that occurs when “the utility that a user derives from consumption of the good increases with the number of other agents consuming the good.”⁴⁹ The classic example of network effects is telephone communication. A telephone network containing only two or very few telephones would be of little market value since no rational consumer is willing to buy different telephones to call different locations. The larger scale of the network the consumer belongs to, the more useful her telephone is.⁵⁰ Another slightly different example is the QWERTY layout of keyboards.⁵¹ Although a typewriter is able to work well without a connection to another one, the uniformity of keyboard layout designs substantially enhance the utility of typewriters in that consumers can freely switch from one to another without undergoing retraining or, in a lesser degree, repeatedly needing to adapt their work habits.⁵² The software industry exhibits a hybrid

⁴⁸ Joe McDonald, *U.S. Cites Chinese Internet Filters as Trade Barrier*, ASSOCIATED PRESS (Apr. 8, 2016), <http://bigstory.ap.org/article/5cd16f16e5204247be352ed02ec090f9/us-cites-chinese-internet-filters-trade-barrier>.

⁴⁹ See Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985). While most commentators use “network externalities” interchangeably with “network effects,” some others prefer “network externalities” only to mean those cause market failures, such as pollution and congestion. See S. J. Liebowitz & Stephen E. Margolis, *Network Externality: An Uncommon Tragedy*, 8 J. ECON. PERSP. 133, 135 (1994). To avoid confusion, this article will stick with the term “network effects.”

⁵⁰ See Howard A. Shelanski & J. Gregory Sidak, *Antitrust Divestiture in Network Industries*, 68 U. CHI. L. REV. 1, 8 (2001) (“[The] individual consumer’s demand to use (and hence her benefit from) the telephone network ... increases with the number of other users on the network whom she can call or from whom she can receive calls.”).

⁵¹ See generally Paul A. David, *Clio and the Economics of QWERTY*, 75 AM. ECON. REV. 332, 333 (May 1985).

⁵² The article will follow some economists to refer to as “switching costs” all inconveniences, e.g. relearning, habit adaptation, reformatting in the case of computer files, caused by switching from one product to another (usually supplied by a different manufacturer). See Joseph Farrell & Paul Klempner,

nature of the above two examples.⁵³ On the one hand, the more a software program can work in harmony with others, the more valuable it is.⁵⁴ On the other hand, if some specific facets of software (e.g., user interfaces) can be standardized to a considerable extent, consumers' switching costs will be reduced correspondingly.⁵⁵

Obviously, network industries will generate a strong, natural dynamic of "compatibility" or "standardization" to enlarge the network scale and therefore fully realize network effects.⁵⁶ Standardization in software industries is normally achieved in one of the following three ways. First, the government may decree certain standards. For example, the National Institute of Standards and Technology is the governmental body responsible for industrial standard setting in the United States.⁵⁷ Second, entrepreneurs in the industry may negotiate to agree on certain standards.⁵⁸ These negotiations usually take place within some private standard-setting organizations and include the industry's major players.⁵⁹ The typical example is the Internet En-

Competition and Lock-In: Competition with Switching Cost and Network Effects, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION 2011–13 (2007).

⁵³ Some commentators use "physical networks" or "direct networks" to describe telephone-like network effects which depend on physical connection or communication and "virtual networks" or "indirect networks" to describe QWERTY-like network effects which depend on consumers' positive feedbacks. See Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP. 93, 95 (1994). For the purpose of this article, the following discussions will be tailored specifically for the latter kind of network effects.

⁵⁴ See, e.g., Peter S. Menell, *The Challenges of Reforming Intellectual Property Protection for Computer software*, 94 COLUM. L. REV. 2644, 1647–1648 (1994) ("the social value generated by computer technology depends significantly on the extent to which network externalities are realized"); Margaret Jane Radin, *Online Standardization and The Integration of Text and Machine*, 70 FORDHAM L. REV. 1125, 1130 (2002) ("The more people who are on the Internet through use of this standard [TCP/IP] protocol, the more valuable the Internet is for each user.").

⁵⁵ See Brief for Respondent as Amicus Curiae of Economic Professors and Scholars Supporting Respondent at 4–5, *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807 (1995) (No. 94-2003) ("Certain aspects of programs must be identical in order for users of different programs to share these network benefits; these aspects will predictably include interfaces . . .").

⁵⁶ Products are "compatible" in a broad sense if they work together easily. Standardization means making products similar enough to be compatible. See Joseph Farrell, *Standardization and Intellectual Property*, 30 JURIMETRICS J. 35, 36 (1989).

⁵⁷ Information about National Institute of Standards and Technology is available at <http://www.nist.gov>. Its Chinese counterpart is Standardization Administration of China, at <http://www.sac.gov.cn/sacen/>. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, <http://www.nist.gov> (last visited Mar. 20, 2017); STANDARDIZATION ADMINISTRATION OF CHINA, <http://www.sac.gov.cn/sacen/> (last visited Mar. 20, 2017).

⁵⁸ This method of standardization is called de jure or formal standardization. See Farrell, *supra* note 56, at 40.

⁵⁹ For a comprehensive survey of private standard-setting organizations and their policies, see Mark A. Lemley, *Antitrust, Intellectual Property and Standard Setting Organizations*, (Apr. 2002) (unpublished presentation from the 29th TPRC Conference), <http://arxiv.org/ftp/cs/papers/0109/0109037.pdf>.

gineer Task Force (“IETF”), which develops and maintains the TCP/IP Protocols and other Internet architectures.⁶⁰ Finally, in industries with strong network effects, standardization will tend to come into being naturally via market competition, absent the above two methods.⁶¹ The existence of several market players competing with incompatible standards will usually lead to *de facto* standardization by the means of so-called “Tipping.”⁶² Once a set of standards has accumulated its market share to a certain point, consumer choices will suddenly all tip towards it and the rest of competing standards will therefore fade out.⁶³ Given the limitations of the former two paths to standardization, instances of tipping towards *de facto* standards are prevalent in network industries, as illustrated by MS-DOS over Macintosh,⁶⁴ VHS over Betamax,⁶⁵ and the remarkable QWERT keyboard.⁶⁶ Although *de facto* standardization ultimately results from consumer choices, technical superiority or low price are in most cases not their only, or even major, concerns.⁶⁷ Other possible determinants include the *ex ante* dominant market position,⁶⁸ marketing strategies,⁶⁹ first-move advantages,⁷⁰ and even luck.⁷¹

On the other hand, network industries may often undergo the side effect of standardization, namely “lock-in” where markets are lastingly dominated by some inferior or obsolete standards.⁷² Lock-in in the context of network

⁶⁰ Information about the Internet Engineer Task Force is available at INTERNET ENGINEER TASK FORCE, <http://www.ietf.org> (last visited Mar. 20, 2017).

⁶¹ See Michael L. Katz & Carl Shapiro, *Technology Adoption in the presence of Network Externalities*, 94 J. POL. ECON. 822, 824 (1986) (“[T]here is another way to enjoy the full benefits of network externalities: achieve *de facto* standardization by having all consumers purchase the same technology.”). Some commentators also called it informal standardization, See Farrell, *supra* note 56, at 42.

⁶² See Stanley M. Besen & Joseph Farrell, *Choosing How to Compete: Strategies and Tactics in Standardization*, 8 J. ECON. PERSP. 117, 118 (1994) (“[N]etwork markets are tippy: the coexistence of incompatible products may be unstable, with a single winning standard dominating the market.”).

⁶³ In reality, such a tipping may not be complete in every case. Minority products may survive in their own tiny networks, if they can cater to certain consumers who care more about special attributes than about network effects. See Katz & Shapiro, *supra* note 53, at 106.

⁶⁴ See Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. L. REV. 479, 592 (1998).

⁶⁵ See Radin, *supra* note 54, at 1136.

⁶⁶ See David, *supra* note 51, at 332–34.

⁶⁷ See Besen & Farrell, *supra* note 62, at 118 (“[V]ictory need not go to the better or cheaper product: an inferior product may be able to defeat a superior one only if it is widely expected to do so.”).

⁶⁸ *Id.* (attributing MS-DOS’s triumph to the support of IBM).

⁶⁹ See Liebowitz & Margolis, *supra* note 49, at 148 (introducing that VHS took the advantage of allowing longer video recording time despite its quality inferiority to Betamax).

⁷⁰ To this point, the QWERTY keyboard is probably the most heavily cited example. Enormous vested interests and switching costs prevent a later superior layout from replacing the awkward QWERTY, which were designed for obsolete purposes. See David, *supra* note 51, at 334–36.

⁷¹ Some commentators ascribe the success of VHS to consumers’ arbitrary choices. See Liebowitz & Margolis, *supra* note 49, at 147 n.15.

⁷² This phenomenon is also called “excess inertia,” a socially excessive reluctance to a new superior standard when important network externalities present in the current one. See Joseph Farrell & Garth

effects may stem from the following three reasons: First, because the result of market tipping hinges on many more determinants than mere technical superiority, there is an inherent possibility that standardization will settle down on some inferior standards.⁷³ Second, when consumers have invested considerably in training themselves or in organizing their business practices based on the existing standards, high switching costs will render some consumers reluctant to switch even with the emergence of obviously superior standards.⁷⁴ Third, even though some consumers or venders prefer the new standards to the existing ones, they will nevertheless withhold switching until there is a clear signal that the overall market will soon tip towards the new ones.⁷⁵ Otherwise, a small portion of consumers or venders who switch ahead of the market majority would risk being deprived of all the benefits drawn from the existing network.⁷⁶ Such “lock-in” effects, based on high switching costs (including the opportunity costs of losing all the benefits of the existing network), will naturally erect entry barriers for potential competing products.

2. Below-Cost Pricing

According to the Areeda-Turner test, the most influential cost measurement for predatory pricing, a price lower than reasonably anticipated short-run marginal cost is *per se* predatory while a price equal to or higher than reasonably anticipated short-run marginal cost is presumably non-predatory.⁷⁷ The reason is that prices in competitive markets usually tend towards marginal costs, so marginal costs represent the prices emerging from perfect competition and constitute an appropriate measure of minimum lawful prices. Nevertheless, because marginal costs are very difficult to compute in practice, the Areeda-Turner test also suggests that courts adopt average variable costs as a reasonable proxy of marginal costs.

Such a measurement, however, may not provide any meaningful guidance in predatory pricing cases involving software and other forms of intellectual property. While software products usually entail high fixed costs of research and development, the marginal costs for further distribution are extraordinarily low, only including the value of the extra physical medium or

Saloner, *Installed Base and Compatibility: Innovation, Product Proouncements and Predation*, 76 AM. ECON. REV. 940, 940 (1986).

⁷³ See *supra* notes 62–71 and accompanying text.

⁷⁴ See Farrell & Klemperer, *supra* note 52, at 1977.

⁷⁵ Some commentators analogized such collective action problems to a group of horses that are unable to escape far while being tied together. See Farrell, *supra* note 56, at 37.

⁷⁶ See Farrell & Saloner, *supra* note 72, at 942 (“Early adopters of the new technology would bear a disproportionate share of the transient incompatibility costs. They may be unwilling to do this.”).

⁷⁷ See Philip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697, 733 (1975).

storage space. If the software is simply made available for online downloading, marginal costs will further approach zero.⁷⁸ Under such circumstances, it is conceptually difficult to imagine a predatory price that is even lower than the “close-to-zero” cost. In practice, pricing at marginal cost for software products would be unlikely to enable the recoupment of high fixed costs given the huge gap between fixed costs and marginal costs. Even in a fully competitive market, software developers usually price their products at a level similar to oligopoly prices rather than marginal costs.⁷⁹ If marginal costs or average variable costs are used as benchmark, the finding of predatory pricing would become virtually impossible in the software market.

Notably, many courts that initially embraced the Areeda-Turner test with little qualification have later started to have more reservations after academic debates and practical concerns of the original formula increased over the years. Some lower courts have developed a series of legal presumptions surrounding average variable costs and average total costs: a price below average variable cost is presumptively unlawful, while a price above average total cost is conclusively lawful; a price falling between these two costs is presumptively lawful unless evidence of intent and market structure rebuts this presumption.⁸⁰ Such a formula appears to be particularly relevant to the evaluation of software piracy. Pirated products are normally priced much lower than the average total costs of legitimate products because copyright pirates do not have to incur the fixed costs of creation and therefore can afford to drive the prices to marginal costs. In this sense, a dominant firm, by deliberate toleration of low-cost piracy, may be able to drive a smaller competitor out of the market and erect high barriers for new market entry.

3. Financial Staying Power

Multinational firms are usually more financially able to withstand piracy in an emerging market for a prolonged period of time than domestic firms. The reasons are two-fold: First, a predator of physical goods will typically have to suffer substantial losses during the period of predatory pricing

⁷⁸ In the cases of software piracy, the marginal costs for software developers are not “close to zero” but “exactly zero” because the pirates instead of software developers generally bear the marginal costs of extra copies.

⁷⁹ For tangible goods, the curves of marginal cost and average variable cost will go upwards beyond a certain point at which the production usually exceeds the maximum capacity of existing facilities. In other words, if the production constantly increases, the curve of marginal cost will eventually cross the curve of average total cost, which means pricing at the marginal cost may equal or exceed average total cost. In contrast, the marginal cost of intellectual goods will graphically look like a vertical linear close to zero, reflecting the insignificant costs of information storage. This line will always be beneath the curve of average total cost. Therefore, pricing at marginal cost will never be sufficient to cover fixed costs in research and development.

⁸⁰ See generally A.B.A. SECTION OF ANTITRUST LAW, PREDATORY PRICING LAW: A CIRCUIT-BY-CIRCUIT SURVEY (Barbara O. Bruckman ed., 1995).

because of its inability to recoup marginal costs at least in the short run. By contrast, toleration of piracy would not directly inflict any marginal costs on the software developer because the pirates actually bear all the costs of manufacturing and distributing copies of relevant products. More importantly, multinational firms by definition have multiple markets around the world. Barring parallel import, copyright piracy in an emerging market generally has an impact on multinational firms no more than the loss of market share in that particular market. Such piracy would not significantly affect their overall financial soundness as long as they may continue to recoup investment through sales in their home markets and/or other major markets (e.g. the United States, the Europe and Japan).

4. Intended Effects of Driving Out Competitors

As mentioned above, copyright piracy drives the prices of software products to marginal costs and deprives producers of the opportunity to recover their fixed costs of creation. Producers are only able to stay in the market if they have the financial ability to withstand such losses. While multinational firms have multiple markets, smaller domestic firms are usually confined to their home market, in which the inability to secure their copyrights and make profits entirely cut off their sources of livelihood.⁸¹ To this extent, domestic firms are more likely to be driven out of the market at early stages. Additionally, compared to foreign firms, the competitive advantage of domestic firms is supposed to be the low fixed costs of creation, including labor costs and infrastructure costs. However, such an advantage disappears when copyright piracy has driven the prices of software products to the marginal costs, which are naturally insensitive to the difference in fixed costs and usually identical for both foreign and domestic works.

5. Prospect of Recoupment

After competitors are driven out of the market or effectively deterred by copyright piracy, foreign firms may recoup the losses incurred in the below-cost pricing at least in three ways. First, they may start to forcefully enforce their copyrights in the emerging market, which in many cases is sufficient to boost the sales of legitimate products. Given the entry barriers mentioned above, new market entries would still be deterred or at least delayed even if enforcement has significantly lowered the piracy level.

Second, in the software industry, which features network effects, copyright enforcement does not need to be too extensive. Partial enforcement targeting high-value customers (e.g., companies and governmental agencies)

⁸¹ See Jiarui Liu, *New Development of Digital Copyright Protection in China the Landmark Case of Zheng Chengsi v. Shusheng*, 57 EUR. INT'L PROP. REV. 299, 303 (2006).

would stimulate sales among these customers. In the meantime, tolerating piracy by low-value customers would maintain the predatory effects enhanced by network effects.

Third, if the living standard in an emerging market is relatively low and price discrimination is not possible, enforcement might not immediately boost local sales. In this case, the recoupment would probably have to wait until the local living standard rises to a level comparable to more developed countries. Although this waiting period could be uncertain, the recoupment is still possible and rational. As mentioned above, foreign firms may be able to withstand piracy for a significant period of time, without the burden of bearing any marginal costs. Besides, the waiting period may in fact be shorter than expected given the rapid economic developments in certain emerging markets.

III. IMPLICATIONS

The above discussions indicate that effective copyright enforcement is of much more significance to domestic authors than to foreign multinationals. Additionally, a dominant firm in the software market may strategically tolerate copyright piracy in order to drive out competitors and deter potential market entry. Accordingly, it may be advisable to implement legal mechanisms to enhance copyright protection and counter the predatory effects of piracy.

A. *Statutes of Limitation*

Several existing legal mechanisms may be particularly suitable to provide additional incentive for copyright owners to enforce their copyrights in a more effective way. In accordance with the statutes of limitation, a copyright owner would be barred from bringing any enforcement action against a particular infringer if she has unreasonably withheld the action for a long period of time (e.g., three years under the U.S. Copyright Act starting from the date she knew or should have known the infringement).⁸²

The statutes of limitation however appear to be rather generous in the case of an infringing act that continues during a period of multiple years. It has been suggested that, if a series of infringing acts constitute a “continuing wrong,” only the last of such acts needs to occur with the three-year statutory period in order for liabilities to attach to them all.⁸³ This means that as long as an infringer continues to use the pirated software, the copyright owner is

⁸² 17 U.S.C. § 507 (2012).

⁸³ *Taylor v. Meirick*, 712 F.2d 1112, 1118 (7th Cir. 1983).

entitled to bring a copyright action anytime she wishes. In such cases, a further incentive may stem from the equitable defense of “laches,”⁸⁴ which is analogous to but more flexible than the statutes of limitation. If a predatory intent to harm market competition is found along with the lapse of time, the predator that unreasonably tolerates copyright piracy could be penalized with forfeiture of legal remedies (e.g., injunction and/or damages) against the continuing infringement or any other infringement in general.

B. *Public Enforcement*

Chinese copyright law is characterized with a bifurcated enforcement regime where an aggrieved copyright owner may file a complaint either to the judiciary or to the administrative authority. In the latter case, the administrative authority would lead the infringement investigation possessing quasi-judicial power to issue a penalty decision ordering injunction, forfeiture of infringing products/tools and illegal profits, and/or payment of a monetary fine (but not damages). There is never a shortage of harsh criticisms against this public enforcement mechanism, which is often accused of wasting administrative resources and lacking due process safeguards.⁸⁵ By quoting the TRIPS Agreement, some observers pointed out that copyrights are essentially private rights so that copyright owners should protect their private rights at their own expense rather than at the expense of taxpayers.⁸⁶ Seemingly as a response to this concern, Chinese copyright law added a qualification for public enforcement in 2003 requiring the administrative authority to only hear copyright cases affecting “public interests.”⁸⁷ As the term “public interests” was left undefined, it virtually granted the authority wide discretion to accept or deny a copyright case.

This article may supply a justification for public enforcement as well as a workable definition for “public interests.” As uncontrolled piracy of foreign works may have severe predatory effects on domestic industries and consumers, the spending of tax money on copyright protection appears to be a necessary evil for the preservation of local markets rather than for the sole benefit of aggrieved copyright owners. Additionally, by construing “public interests” in light of predatory effects on local markets, the enforcement authority would be able to focus administrative resources on piracy cases that truly warrant government interference. The removal of ambiguity in copyright law would also limit the chances of discretion abuses and consequently alleviate due process concerns.

⁸⁴ *Jackson v. Axton*, 25 F.3d 884, 888 (9th Cir. 1994).

⁸⁵ See PETER FENG, *INTELLECTUAL PROPERTY IN CHINA* 12–14 (2d ed. 2003); SANQIANG QU, *COPYRIGHT IN CHINA* 399–400 (2002).

⁸⁶ See Jiarui Liu, *The Tough Reality of Copyright Piracy: A Case Study of the Music Industry in China*, 27 *CARDOZO ARTS & ENT. L. J.* 621, 660 (2010).

⁸⁷ GUAN H. TANG, *COPYRIGHT AND THE PUBLIC INTEREST IN CHINA* 103–04 (2011).

C. *Antitrust Action*

A more aggressive approach is to link predatory toleration of piracy to antitrust actions, which could result in injunctive and monetary relief against the predator. While a general prohibition against toleration of piracy makes little sense as excessive intrusion into private rights, limited legal remedies may still be desirable to the extent that they deter potential predators from intentionally taking advantage of widespread piracy. Whether toleration of piracy may be considered culpable should largely depend on the finding of a predatory intent. A state of mind is generally difficult to prove in the absence of a self-incriminatory statement. In some cases, internal communications, even in strong language, may be not reliable enough as conclusive evidence on the subjective intent behind business decisions. However, predatory intent could be inferred from the fact that the predator takes affirmative steps to promote or induce piracy of its own works or that toleration of piracy, as shown by delay in enforcement or uncooperativeness with enforcement authorities, is rational and profit-maximizing only because of its effects to drive out or exclude rivals.

In other words, toleration of piracy may be lawfully justified for reasons other than excluding rivals or injuring competition. The following are some of the possible defenses. First, the possible compensation obtained from an enforcement action may be too low to cover investigation and legal costs. Therefore, the enforcement action is not self-sustainable. Notably, the significance of this concern must be discounted by the increased sales resulting from successful enforcement. Even if the compensation itself may not justify the costs of legal action, the deterrent effects of effective enforcement may convert existing and potential users of pirated software into legitimate consumers. Copyright protection, however, does not always result in increased sales of legitimate copies. For instance, the majority users of pirated copies may fall under the deadweight loss, given the low living standard and purchasing power in the developing country. So, there would be a minimal market potential in the first place, barring the possibility of price discrimination. For instance, the retail price of Windows reaches as high as three hundred US dollars, which can rival the average annual household income in many developing countries. Pricing discrimination has been used to a very limited extent in the software market because it likely leads to parallel import and spawns a sense of unfairness, both of which could undermine more important high-value markets in developed countries.

Second, toleration of piracy may arguably have certain pro-competitive effects in a network market. In general, the low price of a network product would benefit the producer as well as all consumers of the same product (whether pirated or legitimate), by expanding the network scale and therefore increasing the value of the overall network. To this extent, short-term toleration of piracy for the purposes of introducing a new product and building a

viable user base is similar to promotional pricing, which is generally considered pro-competitive and justifiable. Nonetheless, there is a thin line between competitive behavior to enlarge a network and below-cost predation to exclude rivals, especially for firms with a dominant position. The alleged predator must sufficiently prove that the time span is not longer than necessary to grow a viable user base and there is no equally or more efficient alternative.

CONCLUSION

Chinese commentators often seem to believe that a high level of copyright protection would primarily serve the interests of foreign firms as pirated products in the Chinese markets predominantly target foreign works. Copyright piracy is at times even considered beneficial for widening access to knowledge and boosting local economies. It is therefore not unconceivable that, faced with serious challenges to social stability such as high unemployment rate and rural-urban gulf and public health problems, the Chinese government finds it difficult to justify making copyright protection one of its top priorities despite enormous international pressure.

By fully exploring the predatory effects of copyright piracy, this article points out that piracy of foreign works could still impose a formidable threat to the livelihood of domestic industries in the same way as piracy of domestic works does. Toleration of piracy may be a strategic behavior for dominant software producers to rapidly increase market share and drive out competitors. Therefore, ill-advised acquiescence of piracy by law enforcement would likely end up contributing to the dominant position of multinational firms in the domestic market.

A Chinese official once told his counterpart in the US Copyright Office that China will begin to enforce copyright when it is in China's national interest to enforce copyright.⁸⁸ If such a statement holds true, this article would be able to provide an economic underpinning as well as an intrinsic incentive for China and similar developing countries to establish a robust copyright regime wholeheartedly. This potentially powerful incentive is to shelter domestic industries and consumers from the predatory effects of rampant copyright piracy.

⁸⁸ See Ralph Oman, *Copyright Piracy in China*, 5 J. MARSHALL REV. INTELL. PROP. L. 583, 586 (2006).